

## PRECAST CONCRETE WALLS

Precast concrete wall systems can be comprised of a variety of shapes, and wall types. Typically, precast concrete wall systems fall into three basic categories: solid, sandwich, and thin-shell. These can be panelized and erected in either a horizontal or vertical position and used on all types of structures, from residential to commercial, and institutional to industrial. Wall panels can be designed as non-loadbearing or loadbearing, carrying floor and roof loads, as well as lateral loads.

### THIN-SHELL AND GFRC

Thin-shell wall panels consist of a thin, outer-wythe of concrete, typically ranging between 1.5 and 3 inches in thickness. This is connected to a back-up system, usually constructed of steel framing or studs, or sometimes concrete. The back-up system is what connects the wall panel to the structural system of the building and often provides the furring for interior finishes, such as drywall to be attached. Many of these systems can also incorporate a layer of rigid insulation between the exterior wythe of concrete and the back-up system.

Glass Fiber-Reinforced Concrete (GFRC) is a thin-shell system where the exterior wythe of concrete contains alkali-resistant glass fibers that is normally sprayed into forms. The fibers increase tensile, flexural and impact strengths.

Both thin-shell systems reduce the weight of the panels relative to other precast wall systems. Some can also be designed as loadbearing.

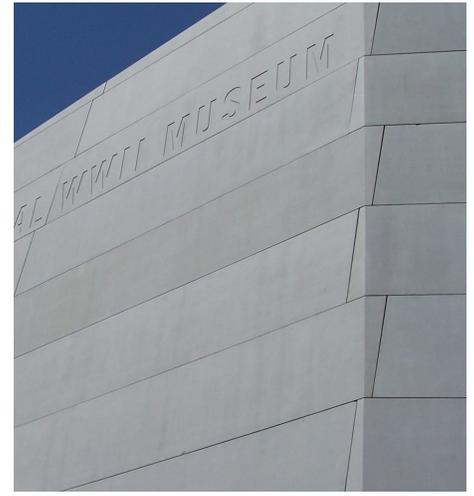
As with typical wall panels, the panels are cast in a flat orientation, so the form side is generally the side that will be exposed to view in the final construction. This face can be made with virtually any type of finish. GFRC panels allow for great aesthetic details and extensions, such as cornices.



## SOLID WALLS

Solid wall panel refers to walls being made of solid concrete as opposed to including integral insulation. These wall systems require insulation and an interior wall/finishing system to complete the building enclosures.

Since wall panels are cast in a flat orientation, the form side is typically the side that will be exposed to view in the final construction. This face can be made with virtually any type of finish. The back face is commonly troweled smooth or may have a light broom finish.



## SANDWICH WALLS

Insulated sandwich wall panels can be architectural, structural, or a combination of both. The difference between typical panels and insulated sandwich wall panels is that the latter are cast with rigid insulation “sandwiched” between two layers, or wythes, of concrete. The insulation thickness can vary to create the desired thermal insulating property (“R” value) for the wall.

Insulated sandwich wall panels can be designed to be loadbearing and support floor and roof components. They make an ideal structural element for this purpose, normally by casting a thicker interior wythe to provide the necessary support. They can also be non-loadbearing to complete a façade.

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